

WE CLAIM:

1. A method for securing payment over a network from a customer to a merchant, performed by a trusted party component, the method comprising:

5 receiving a request from the customer to pay the merchant, the request including a transaction information;

obtaining confidential payment information of the customer;

generating payment authentication information based on the confidential payment information; and

10 facilitating payment to the merchant without disclosing the confidential payment information of the customer to the merchant by transmitting instructions to pay the merchant on behalf of the customer and the payment authentication information to a payment component.

15 2. The method of claim 1, wherein the payment authentication information is generated based on the confidential payment information and the transaction information.

20 3. The method of claim 1, wherein the payment authentication information comprises a digital signature determined based on a secret key of the customer.

4. The method of claim 1, wherein the trusted party component is a computer program signed by a trusted third party, spawned by a first computer of the merchant, and executed on a second computer of the customer.

25 5. The method of claim 1, wherein the trusted party component is a computer program signed by a trusted third party, installed in a first computer of the customer, and invoked by a second computer of the merchant.

6. The method of claim 1, wherein the trusted party component executes on a computer of a trusted third party.

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7. The method of claim 1, wherein the trusted party component is a computer program spawned by or downloaded from a first computer of a trusted third party and executed on a second computer of the customer.

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8. The method of claim 1, further comprising:  
verifying, by the payment component, the payment authentication information.

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9. The method of claim 8, further comprising:  
paying the merchant, if the payment authentication information is verified.

10. The method of claim 9, wherein the transaction information includes a transaction amount and paying comprises instructing at least one financial institution to pay the merchant at least part of the transaction price.

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11. The method of claim 1, further comprising:  
notifying the customer that the merchant has been paid.

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12. The method of claim 1, further comprising:  
providing the merchant with a transaction history report including the payment authentication information.

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13. The method of claim 1, wherein the transaction information includes a transaction amount and the method further comprises:  
requesting pre-authorization for the transaction amount from at least one financial institution; and  
transmitting the pre-authorization to the payment component with the instructions to pay the merchant on behalf of the customer and the payment authentication information.

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14. The method of claim 1, further comprising:  
authenticating the confidential payment information as associated with the  
customer; and  
storing the confidential payment information in a database accessible to the  
payment component.
15. The method of claim 14, the method further comprising:  
obtaining the confidential payment information from the database; and  
verifying, by the payment component, the payment authentication information  
and the confidential payment information.
16. The method of claim 15, further comprising:  
paying the merchant, if the payment authentication information and the  
confidential payment are verified.
17. A method for securing payment from a customer to a merchant over a network,  
performed by a first trusted party component, the method comprising:  
receiving a request from the customer to pay the merchant;  
obtaining confidential payment information associated with the customer;  
generating payment authentication information based on the confidential  
payment information;  
transmitting the payment authentication information to the merchant;  
receiving from the merchant the payment authentication information with a  
merchant signature;  
verifying the merchant signature and the payment authentication information; and  
paying the merchant on behalf of the customer.
18. The method of claim 17, wherein the payment authentication information is  
generated based on the confidential payment information and transaction information

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19. The method of claim 17, wherein the payment authentication information comprises a digital signature of the confidential payment information and transaction information.

5 20. The method of claim 19, wherein the payment authentication information with merchant signature is received by a second trusted party component and the second trusted party component verifies the merchant signature and the payment authentication information.

10 21. The method of claim 20, further comprising:  
paying the merchant, by the second trusted party component, on behalf of the customer.

15 22. The method of claim 20, further comprising:  
generating, by the first trusted component, an encryption of the confidential payment information and transaction information;  
transmitting the encryption to the second trusted party component, who uses the encryption to verify the merchant signature and the payment authentication information.

20 23. The method of claim 22, wherein transmitting the encryption to the second trusted party component is performed by saving the encryption in a database accessible to the first trusted party component and the second trusted party component.

25 24. A method for securing payment from a customer to a merchant over a network, performed by a trusted party component, the method comprising:  
receiving an instruction from the customer to pay the merchant with a merchant signature;  
obtaining confidential payment information of the customer;  
verifying the merchant signature; and,  
paying the merchant based on the confidential payment information, if the merchant signature is verified.

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25. The method of claim 24, further comprising:  
generating payment authentication information based on the confidential  
payment information and transaction information; and  
transmitting the payment authentication information with a third-party signature to  
the merchant.

26. The method of claim 25, wherein paying the merchant comprises transferring  
funds from an account related to the customer to an account related to the merchant.

27. A computer-readable medium containing instructions for causing a computer to  
perform a method for securing payment over a network from a customer to a merchant,  
the method comprising:

receiving a request from the customer to pay the merchant, the request including  
a transaction information;

obtaining confidential payment information of the customer;  
generating payment authentication information based on the confidential  
payment information; and

facilitating payment to the merchant without disclosing the confidential payment  
information of the customer to the merchant by transmitting instructions to pay the  
merchant on behalf of the customer and the payment authentication information to a  
payment component.

28. The medium of claim 27, wherein the payment authentication information is  
generated based on the confidential payment information and the transaction  
information.

29. The medium of claim 27, wherein the payment authentication information  
comprises a digital signature determined based on a secret key of the customer.

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30. The medium of claim 27, wherein the trusted party component is a computer program signed by a trusted third party, spawned by a first computer of the merchant, and executed on a second computer of the customer.

5 31. The medium of claim 27, wherein the trusted party component is a computer program signed by a trusted third party, installed in a first computer of the customer, and invoked by a second computer of the merchant.

10 32. The medium of claim 27, wherein the trusted party component executes on a computer of a trusted third party.

15 33. The medium of claim 27, wherein the trusted party component is a computer program spawned by or downloaded from a first computer of a trusted third party and executed on a second computer of the customer.

34. The medium of claim 27, further comprising:  
verifying, by the payment component, the payment authentication information.

20 35. The medium of claim 27, further comprising:  
paying the merchant, if the payment authentication information is verified.

25 36. The medium of claim 27, wherein the transaction information includes a transaction amount and paying comprises instructing at least one financial institution to pay the merchant at least part of the transaction price.

37. The medium of claim 27, further comprising:  
notifying the customer that the merchant has been paid.

38. The medium of claim 27, further comprising:  
providing the merchant with a transaction history report including the payment authentication information.

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39. The medium of claim 27, wherein the transaction information includes a transaction amount and the method further comprises:

requesting pre-authorization for the transaction amount from at least one financial institution; and

transmitting the pre-authorization to the payment component with the instructions to pay the merchant on behalf of the customer and the payment authentication information.

40. The medium of claim 27, further comprising:

authenticating the confidential payment information as associated with the customer; and

storing the confidential payment information in a database accessible to the payment component.

41. The medium of claim 40, the method further comprising:

obtaining the confidential payment information from the database; and

verifying, by the payment component, the payment authentication information and the confidential payment information.

42. The medium of claim 41, further comprising:

paying the merchant, if the payment authentication information and the confidential payment are verified.

43. A computer-readable medium containing instructions for causing a computer to perform a method for securing payment over a network from a customer to a merchant, the method comprising:

receiving a request from the customer to pay the merchant;

obtaining confidential payment information associated with the customer;

generating payment authentication information based on the confidential payment information;

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transmitting the payment authentication information to the merchant;  
receiving from the merchant the payment authentication information with a  
merchant signature;  
verifying the merchant signature and the payment authentication information; and  
paying the merchant on behalf of the customer.

44. The medium of claim 43, wherein the payment authentication information is generated based on the confidential payment information and transaction information

45. The medium of claim 43, wherein the payment authentication information comprises a digital signature of the confidential payment information and transaction information.

46. The medium of claim 43, wherein the payment authentication information with merchant signature is received by a second trusted party component and the second trusted party component verifies the merchant signature and the payment authentication information.

47. The medium of claim 46, further comprising:  
paying the merchant, by the second trusted party component, on behalf of the customer.

48. The medium of claim 46, the method further comprising:  
generating, by the first trusted component, an encryption of the confidential payment information and transaction information;  
transmitting the encryption to the second trusted party component, who uses the encryption to verify the merchant signature and the payment authentication information.

49. The medium of claim 47, wherein transmitting the encryption to the second trusted party component is performed by saving the encryption in a database accessible to the first trusted party component and the second trusted party component.

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50. A computer-readable medium containing instructions for causing a computer to perform a method for securing payment over a network from a customer to a merchant, the method comprising:

5 receiving an instruction from the customer to pay the merchant with a merchant signature;

obtaining confidential payment information of the customer;

verifying the merchant signature; and,

10 paying the merchant based on the confidential payment information, if the merchant signature is verified.

51. The medium of claim 50, the method further comprising:

generating payment authentication information based on the confidential payment information and transaction information; and

15 transmitting the payment authentication information with a third-party signature to the merchant.

52 The medium of claim 50, wherein paying the merchant comprises transferring funds from an account related to the customer to an account related to the merchant.

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53. A apparatus for securing payment over a network from a customer to a merchant, the apparatus comprising:

a processing unit;

an input/output device coupled to the processing unit;

25 a storage device in communication with the processing unit, the storage device including,

program code for receiving an instruction from the customer to pay the merchant, the instruction including confidential payment information of the customer;

program code for generating payment authentication information based on the confidential payment information; and

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program code for paying the merchant on behalf of the customer according to the payment authentication information, wherein the confidential payment information of the customer is not disclosed to the merchant.

5 54. The apparatus of claim 53, wherein the payment authentication information comprises a digital signature determined based on a secret key of the customer.

55. The apparatus of claim 53, the storage device further comprising:  
stored confidential payment information.

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56. A system comprising:  
a trusted component capable of  
receiving an instruction from a customer to pay a merchant;  
obtaining confidential payment information associated with the customer,  
15 generating payment authentication information based on the confidential  
payment information, and  
transmitting the payment authentication information to a payment  
processor; and  
the payment processor capable of  
20 verifying the payment authentication information and  
paying the merchant on behalf of the customer according to the payment  
authentication information, wherein the confidential payment information of the  
customer is not disclosed to the merchant.

25 57. The system of claim 56, wherein the payment authentication information comprises a digital signature determined based on a secret key of the customer.

58. The system of claim 56, further comprising:  
a shared database operatively connected to the trusted component and the  
payment processor; and wherein the verifying is performed based on a secret key of the  
customer stored in the shared database.

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59. The system of claim 56, further comprising:  
a payment component operatively connected to the trusted component and capable of preauthorizing the confidential payment information.

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60. The system of claim 59, wherein the trusted component transmits the payment authentication information to the payment processor with a preauthorization from the payment component.

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61. The system of claim 60, wherein the payment component is operatively connected to the trusted component and the transaction processor and the transaction processor is further capable of authorizing payment to the merchant based on a preauthorization from the payment component.

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